

U.S. Department of Commerce, Patent and Trademark Office LIST OF RELEVANT ART CITED BY APPLICANT (Use several sheets if necessary)				Docket No.: 2287/C03/PVD/PS		Serial No.: unknown	
				Applicants: Imran Hashim, Tony Chiang and Barry L. Chin			
				Filing Date: herewith		Group:	

U.S. Patent Citations							
*Examiner Initial	Class	Document Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate
C	AA	966,634	10/12/99	Inohara et al	2		
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

Foreign Patent Citations						Translation	
Document Number	Date	Country	Class	Subclass	Yes	No	

OTHER CITATIONS	(Citing Author, Title, Date, Pertinent Pages, Etc.)

Examiner C	Date Considered 6.16.04
---------------	----------------------------

*EXAMINER: I have considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and date. Include copy of this form with your communication to applicant.

BEST AVAILABLE COPY

U.S. Department of Commerce, Patent and Trademark Office RELEVANT ART CITED BY APPLICANT (Use several sheets if necessary)	Docket No.: 2287/C03/PVD/PS	Serial No.: unknown
Applicants: Imran Hashim, Tony Chiang and Barry L. Chin		
Filing Date: herewith		Group: Unknown

*Examiner Initial	Document Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate
CL	874,493	10/17/89	Pan			
	874,494	10/17/89	Ohmi			
	91,112	01/02/90	Wong			
	15,806	04/10/90	Lardon et al.			
	62,060	10/09/90	Sliwa et al.			
	63,239	10/16/90	Shimamura et al.			
	68,374	11/06/90	Tsukada et al.			
	99,096	03/12/91	Nihei			
	69,770	12/03/91	Glocker			
	78,847	01/07/92	Grosman et al.			
CL	24,014	06/23/92	Foo et al.			

Document Number	Date	Country	Class	Subclass	Translation	
					Yes	No

Other	(g Author, Title, Date, Pertinent Pages, Etc.)
CL	ni et al., "Sputter-Etching Planarization for Multilevel Metallization", March 1983, J. Electrochem. Soc., No. 3, pp. 645-648
CL	ki, "Microwave Plasma Etching", 1984, Central Research Laboratory, Hitachi Ltd., pp. 953-957
CL	no, "Reactive Ion-Beam Etching and Plasma Deposition Techniques Using Electron cyclotron Resonance", 1985, Aisugi Electrical Communication Laboratory, pp. 75-117

Examiner	Date Considered
	6.16.04

*EXAMINER'S CONFORMANCE STATEMENT: I have considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance. Include copy of this form with your communication to applicant.

BEST AVAILABLE COPY

Commerce, Patent and Trademark Office

Docket No.:

2287/C03/PVD/PS

Serial No.:

unknown

ART CITED BY APPLICANT

(several sheets if necessary)

Applicants:

Imran Hashim, Tony Chiang and Barry L. Chin

Filing Date:

herewith

Group:

Unknown

*Examiner
Initials

Document Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate
CL 028	06/30/92	Hurwitt et al.			
0739	01/12/93	Barnes et al.			
0640	06/22/93	Sato			
0264	12/14/93	Andideh et al.			
0972	12/21/93	Kwok et al.			
0266	04/12/94	Grabarz et al.			
0139	04/12/94	Mark			
0793	05/03/94	Taguchi et al.			
0600	09/13/94	Nieh et al.			
0479	09/27/94	Collins et al.			
CL 0712	10/11/94	Ho et al.			

Foreign

Translation

Document Number	Date	Country	Class	Subclass	Yes	No

Author, Title, Date, Pertinent Pages, Etc.)

al., Planar Deposition of Aluminum by RF/DC Sputtering with RF Bias", June, 1985, J.Electrochem.Soc., Sci. & Tech., Vol. 132, No. 6, pp. 1466-1471

by MTi", November, 1985, Semiconductor International

et al., "Planarization by Radio-Frequency Bias Sputtering of Aluminum as Studied Experimentally and after Simulation", Nov./Dec. 1985, J.Vac.Sci.Technol.A3(6), pp. 2167-2171

Examiner

Date Considered

6.16.04

*EXAMINER
conformance

considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance. Include copy of this form with your communication to applicant.

CAWPSI
Express

258US

<p>U.S. Patent and Trademark Office</p> <p>INTERNATIONAL ART CITED BY APPLICANT (Draw separate sheets if necessary)</p>	<p>Docket No.: 2287/C03/PVD/PS</p>	<p>Serial No.: unknown</p>
<p>Applicant(s): Imran Hashim, Tony Chiang and Barry L. Chin</p>		
<p>Filing Date: herewith</p>		<p>Group: Unknown</p>

*Examiner Initial	Patent Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate
CL	042	12/06/94	Ong			
	611	01/09/96	Helmer et al.			
	011	04/23/96	Okamura et al.			
	150	04/30/96	Bourez et al.			
	399	05/14/96	Balconi-Lamica et al.			
	460	07/09/96	Tseng et al.			
	974	12/17/96	Sellers			
	974	12/17/96	Shrinkle			
	041	12/31/96	Lantsman			
	269	01/07/97	Arami et al.			
CL	96	03/25/97	Kurino et al.			

						Translation	
Patent Number	Date	Country	Class	Subclass	Yes	No	

OTHER REFERENCES	<p>Staff, MTI Thin Film Equipment Division, "Planarizing Enhancement Mode "Sputtering...Plus"(TM) for Aluminum in Sypherline(TM)", April, 1986, Applications Note, Vol. 1, No. 1</p> <p>et al., "Significant Improvement in Step Coverage Using Bias Sputtered Aluminum", May/June, 1986, Technol. A4(3), pp. 457-460</p> <p>ita, "Fundamental Characteristics of Built-In High-Frequency Coil-Type Sputtering Apparatus", 1989, J.Vac.Sci.Technol.A, Vol. 7, No. 2, pp. 151-158</p>
Examiner	<p>Date Considered</p> <p style="text-align: center;">6.16.04</p>

BEST AVAILABLE COPY

*EXAMINER'S
conformance with
CAWPSI FORMS
Express Mail L

258US

U.S. DEPARTMENT OF COMMERCE, Patent and Trademark Office LIST OF PRIOR ART CITED BY APPLICANT (Attach separate sheets if necessary)	Docket No.:	Serial No.:
	2287/C03/PVD/PS	unknown
	Applicants:	
	Imran Hashim, Tony Chiang and Barry L. Chin	
	Filing Date:	Group:
	herewith	Unknown

*Examiner Initial	Patent Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate
C	57	06/17/97	Xu			
	865	07/29/97	Sellers			
	32	08/05/97	Gardner			
	87	10/07/97	Zhao et al.			
	51	11/11/97	Pourrezai et al.			
	39	11/11/97	Bourez et al.			
	13	02/17/98	Drummond et al.			
	39	03/10/98	Hu			
	13	06/23/98	Sellers			
	7	07/14/98	Xu et al.			
C	7	09/15/98	Givens et al.			

Translation						
Patent Number	Date	Country	Class	Subclass	Yes	No

EXAMINER'S STATEMENT (Indicate whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance.) EXAMINER'S STATEMENT (Indicate whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance.)	Author, Title, Date, Pertinent Pages, Etc.) et al., "Dense Plasma Production and Film Deposition by New High-Rate Sputtering Using an Electric Field", Aug. 1989, J.Vac.Sci.Technol A7(4), pp. 2651-2657 Magnetically Confined and Electron Cyclotron Resonance Heated Plasma Machine for Coating and Ionization Use", May/June 1991, J.Vac.Sci.Technol.A., pp. 466-473 Unbalanced Magnetrons and New Sputtering Systems with Enhanced Plasma Ionization", May/June 1991, J.Vac.Sci.Technol.A9(3), pp. 1171-1177 Date Considered 6.16.04
--	---

J.S. I

Commerce, Patent and Trademark Office

Docket No.:

2287/C03/PVD/PS

Serial No.:

unknown

ART CITED BY APPLICANT

(al sheets if necessary)

Applicants:

Imran Hashim, Tony Chiang and Barry L. Chin

Filing Date:

herewith

Group:

Unknown

J.S. I

*Examine
Initial

nt r	Issue Date	Name	Class	Subclass	Filing Date If Appropriate
33	09/22/98	Tomioka			///
32	09/22/98	Sellers			///
32	12/08/98	Zhao et al.			///
34	01/12/99	Fu et al.			///
32	01/26/99	Drummond et al.			///
31	02/02/99	Yokoyama et al.			///
32	04/27/99	Hong et al.			///
27	10/19/99	Kobayashi et al.			///
27	11/02/99	Tanaka			///
32	11/16/99	Geffken et al.			///
30	12/14/99	Mosely et al.			///

Translation

Date	Country	Class	Subclass	Yes	No

OTHER

(Author, Title, Date, Pertinent Pages, Etc.)

1. "Electron Energy Distribution Function in a DC Magnetron Sputtering Discharge", 1992, Vacuum, 48, pp. 837-842

2. "High Bias Sputtering for Large-Area Selective Deposition", 1993, Thin Solid Films, Vol. 228, pp. 87-

3. "Wave Propagation and Plasma Uniformity in an Electron Cyclotron Resonance Plasma", Sep/Oct Sci. Technol. A 11(5), pp. 2572-2576

Date Considered

6.16.04

Considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in de copy of this form with your communication to applicant.

JUS

US

U.S. Department of Commerce, Patent and Trademark Office LIST OF RELEVANT ART CITED BY APPLICANT (Use several sheets if necessary)	Docket No.: 2287/CQ3/PVD/PS	Serial No.: unknown
	Applicant(s): Imran Hashim, Tony Chiang and Barry L. Chin	
	Filing Date: Herewith	Group:

U.S. Patent Documents							
*Examiner Initial		Document Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate
CL	AA	4,756,810	07/12/88	Lamont, Jr. et al.			
CL	AB	4,816,126	03/28/89	Kamoshida et al.			
CL	AC	6,110,821	08/29/00	Kohara et al.			
CL	AD	6,291,885 B1	09/18/01	Cabral, Jr. et al.			
CL	AE	6,375,810 B2	04/23/02	Hong			
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

Foreign Patent Documents							Translation	
		Document Number	Date	Country	Class	Subclass	Yes	No
CL	AL	JP61261472A2	11/19/86	JP			X Abstract Only	
CL	AM	JP4030421A2	02/03/92	JP			X Abstract Only	
CL	AN	EP 0 202 572 B1	12/15/93	EP			X	
	AO							
	AP							

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)		
CL	AR	Fusen Chen et al., U.S. Patent Application No. 08/856,116, filed May 14, 1997, entitled "Reliability Barrier Integration for CU Application"
	AS	
	AT	

Examiner <i>calomlee</i>	Date Considered 6.16.04
-----------------------------	----------------------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.

C:\WP51\FORMS\1449.PTO

Express Mail Label No. 975550258US

U.S. Department of Commerce, Patent and Trademark Office EVANT ART CITED BY APPLICANT (use several sheets if necessary)		Docket No.: 2287/C03/PVD/PS		Serial No.: unknown	
		Applicant(s): Imran Hashim, Tony Chiang and Barry L. Chin			
		Filing Date: herewith		Group: Unknown	

U.S. Patents						
*Examiner Initial	Document Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate
CL	410,774	11/12/68	Barson et al.			
	358,338	11/09/82	Downey et al.			
	565,601	01/21/86	Kakehi et al.			
	581,653	07/21/87	Purdes et al.			
	732,761	03/22/88	Machida et al.			
	756,801	07/12/88	Jokinen et al.			
	767,496	08/30/88	Hieber			
	793,895	12/27/88	Kaanta et al.			
	810,335	03/07/89	Hieber			
	824,546	04/25/89	Ohmi			
CL	865,712	09/12/89	Mintz			

Foreign Patents					Translation	
Document Number	Date	Country	Class	Subclass	Yes	No
CL 3456 A2		EP			X	
CL 502 A2		EP			X	
CL 34164		JP			Abstract Only	
CL 577 A2		EP			X	
CL 119A2		JP			Abstract Only	

OTHER REFERENCES	
CL	ig et al., "RF Sputtering System with Variable Substrate Bias", July 1970, IBM Technical Disclosure Bulletin, Vol. 13, No. 2, pp. 323-324
CL	chel, "Pressure Control of RF Bias for Sputtering", December 1976, Rev. Sci. Instrum., Vol. 47, No. 12, pp. 557
CL	ki et al., "Microwave Plasma Etching", November, 1997, Japanese Journal of Applied Physics, Vol. 16, No. 1979-1984
Examiner	Date Considered 6.16.04

*EXAMINER: I have considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance.
Include copy of this form with your communication to applicant.

U.S. Department of Commerce, Patent and Trademark Office LIST OF RELEVANT ART CITED BY APPLICANT (Use several sheets if necessary)					Docket No.: 2287/C03/PVD/PS		Serial No.: unknown	
					Applicants: Imran Hashim, Tony Chiang and Barry L. Chin			
					Filing Date: Herewith		Group: _____	

U.S. Patent Documents							
*Examiner Initial	Document Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate	

Foreign Patent Documents							Translation	
4	AF	5,262,354	11/16/93	Cote et al.	_____	_____	_____	
	AG	5,376,584	12/27/94	Agarwala	_____	_____	_____	
	AC	5,486,492	01/23/96	Yamamoto et al.	_____	_____	_____	
	AH	5,585,673	12/17/96	Joshi et al.	_____	_____	_____	
	AI	5,612,254	03/18/97	Mu et al.	_____	_____	_____	
	AJ	5,693,563	12/02/97	Teong	_____	_____	_____	
	AK	5,731,245	03/24/98	Joshi et al.	_____	_____	_____	
	AD	5,744,376	04/28/98	Chan et al.	_____	_____	_____	
	AE	5,759,906	07/1998	Lou	_____	_____	_____	
	AA	5,904,565	05/18/99	Nguyen et al.	_____	_____	_____	
CL	AB	5,933,753	08/03/99	Simon et al.	_____	_____	_____	
		Document Number	Date	Country	Class	Subclass	Yes	No
CL	AL	0 798 778 A2	10/01/97	EP	_____	_____	X	
CL	AM	0 892 428 A2	01/20/99	EP	_____	_____	X	
CL	AN	0 788 160 A3	06/16/99	EP	_____	_____	X	
	AO							
	AP							

OTHER ART (including Author, Title, Date, Pertinent Pages, Etc.)	
CL	AR endpoint Detection Method for Ion Etching of Material Having a Titanium Nitride Underlayer", RESEARCH CLOSURE, February 1991, Number 322, (C) Kenneth Mason Publications Ltd, England
CL	AS Davellus Damascus Home Page, "12 Steps of Damascus"
	AT

Examiner <i>calvin a</i>	Date Considered 6.16.04
------------------------------------	-----------------------------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

☐ **BLACK BORDERS**

☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**

☒ **FADED TEXT OR DRAWING**

☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**

☐ **SKEWED/SLANTED IMAGES**

☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**

☐ **GRAY SCALE DOCUMENTS**

☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**

☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**

☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.